

Claims

1 A stowable table for a vehicle, particularly an aircraft, said stowable table comprising:

mounting means adapted to be fixedly secured to a supporting structure;

5 table-top means comprising a table-top member;

connecting means for connecting said table-top means to said mounting means, said connecting means comprising guiding means which are adapted to allow the table-top means to slide substantially vertically with respect to the mounting means when fitted between a first lower stowed position and a second upper deployed position, and to allow 10 said table-top means to rotate about a substantially horizontal axis between a stowed upright orientation when in the first stowed position, and a substantially horizontal deployed orientation when in the deployed position; and

15 cantilevering means for cantilevering the table-top means from the mounting means in the upper deployed position such that said table-top means are capable of bearing loads in said deployed orientation, said cantilevering means comprising engaging means on said table-top means, and abutment means on said mounting means; said engaging means and abutment means being configured and arranged to engage one another when the table-top means are rotated to the deployed orientation in the deployed position; and said guiding means being further adapted to locate the table-top means in said upper position, such that 20 said engaging means and abutment means engage one another stably when the table-top means are rotated to the deployed orientation.

2 A stowable table as claimed in claim 1, wherein said engaging means comprise a plurality of formations on said table-top means and adapted to rotate therewith.

3 A stowable table as claimed in claim 2, wherein said abutment means comprise a 25 plurality of corresponding abutment plates.

4 A stowable table as claimed in claim 2 or claim 3, wherein said table-top member and said formations are arranged such that when said table-top assembly is in the deployed orientation, said table-top member projects in a forwards direction from said horizontal axis, and said formations project generally forwardly from said axis and in a generally opposite, rearwards direction from said axis; said corresponding abutment means being disposed generally in front of and behind said axis, such that in the deployed position and orientation, said mounting means react on the table-top means through said abutment means at spaced positions on either side of said axis for cantilevering the table-top means.

5 A stowable table as claimed in claim 4, wherein said table-top means comprise a rotatable shaft, said table-top member being connected to said shaft, and said shaft being disposed on said substantially horizontal axis; said formations being fixedly mounted on said shaft.

5 6 A stowable table as claimed in any preceding claim, wherein said guiding means comprise track means on said mounting means, and corresponding track-following means on said table-top means, which track-following means are constrained to slide along said track means for guiding the table-top means between said stowed and deployed positions.

10 7 A stowable table as claimed in claim 6, wherein said track means comprise two spaced, upright tracks, and said track-following means comprise two corresponding rollers on said table-top means.

8 A stowable table as claimed in claim 6 or claim 7, wherein said track-following means are positioned on said horizontal axis.

15 9 A stowable table as claimed in claim 6, claim 7, or claim 8, wherein said guide means further comprise means for controlling rotation of said table-top means, according to the position of said table-top means between the lower stowed position and the upper deployed position.

20 10 A stowable table as claimed in claim 9, wherein said rotation controlling means comprise shaped cam means on said mounting means and corresponding cam-following means on said table-top means; wherein said cam means and said cam-following means are configured and positioned relative to the track means and track-following means to position the table-top means in the stowed orientation when in the stowed position, and in the deployed orientation when in the deployed position.

25 11 A stowable table as claimed in claim 10, wherein said cam means are configured to cause progressively greater rotation of the table-top means about said horizontal axis from the stowed orientation to the deployed orientation as the table-top means moves from said lower stowed position to said upper deployed position.

30 12 A stowable table as claimed in claim 11, wherein said track following means are positioned on said horizontal axis, and said cam-following means are offset from said axis; said track means and cam means extend generally upwardly from respective lower ends to respective upper ends when fitted to said supporting structure, and said cam means diverge from the track means as they extend from their lower end to their upper end to cause progressively greater rotation of the cam-following means about said axis such as to cause

said table-top to rotate from said stowed orientation to said deployed orientation as it moves from said stowed position to said deployed position.

13 A stowable table as claimed in any preceding claim, wherein said connecting means further comprise means for counter-balancing the weight of the table-top means as they move between said stowed and deployed positions.

14 A stowable table as claimed in claim 13, wherein said counter-balancing means comprise a constant force spring connected between the table-top means and the mounting means.

15 A stowable table as claimed in any preceding claim, wherein said guiding means further comprise two spaced racks on said mounting means, which racks extend substantially vertically when fitted to said supporting structure, and two corresponding, freely-rotatable pinions mounted on said table-top means on said horizontal axis in engagement with said racks, thereby to obtain smooth movement of the table-top means between said upper and lower positions.

16 A stowable table as claimed in any preceding claim, wherein said table-top means comprise means for connecting said table-top member to said guiding means and providing lateral reciprocal movement of said table-top member relative to said mounting means when said table-top means are disposed in said deployed position and orientation, said table-top connecting means comprising a ball spline connected to said guiding means and arranged to allow said table-top member to slide in a direction substantially parallel to said axis.

17 A stowable table as claimed in claim 16, wherein said table-top connecting means further comprise a sub-frame that is connected to said ball spline, and means for slidably mounting said table-top member on said sub-frame so as to allow said table-top member to slide reciprocally relative to said sub-frame in a direction substantially parallel to said axis; said slidable mounting means comprising a plurality of spaced, substantially parallel guide rails on one of said table-top member and said sub-frame, and linear bearings on the other of said sub-frame and said table-top member for bearing said guide rails.

18 A stowable table as claimed in claim 17, wherein said slidable mounting means comprises two guide rails, one guide rail being supported by two spaced bearings on said sub-frame or table-top member, and the other guide rail being supported by only one bearing, thereby to alleviate juddering when the table-top member slides relative to said sub-frame.

19 A stowable table as claimed in claim 17 or claim 18, wherein said table-top connecting means further comprise two pulleys, each of which is mounted to the table-top member for rotation about a pulley axis substantially orthogonal to the direction of sliding of said table-top member; and two cables, each of which is connected at one end to a
5 respective end of the ball spline, extends around a respective one of said pulleys, and is connected at its other end to the table-top member, the arrangement being such that movement of the sub-frame on the ball spline causes corresponding movement of the table-top member in the same direction relative to the sub-frame.

20 A stowable table as claimed in any of claims 16 to 19, wherein said ball spline comprises a shaft and reciprocating nut adapted to travel along said shaft; said shaft being formed with a locating depression at a centre-point, and said nut comprising a spring-loaded follower that is adapted to enter said depression when the nut is positioned at said centre-point; said follower comprising an engaging member that is arranged normally to engage a corresponding abutment provided on said mounting means so as to prevent rotation of the table-top means from the deployed orientation to the stowed orientation, except when said nut is positioned at the centre-point where entry of the follower into the depression cause said engaging member to disengage from the abutment, thereby to allow said table-top means to be returned to the stowed orientation at the centre-point.

21 A stowable table assembly for a vehicle, particularly an aircraft, said stowable table comprising:

a mounting frame that is adapted to be fixedly secured to a supporting structure on a vehicle;

25 two spaced, elongate tracks that are rigidly connected to said mounting frame, and are arranged to extend vertically when the mounting frame is in the fitted position, each of said tracks having a lower end and an upper end;

a table-top assembly comprising a table-top member having a table surface, and a pair of spaced track-following members which define an axis therebetween, each of said track-following members being disposed in and constrained to slide along a respective one of said tracks for guiding the table-top assembly to move between a first lower stowed position proximate the lower ends of said tracks, and a second upper deployed position proximate the upper ends of said tracks, whereby said axis is oriented substantially horizontally, and said table-top assembly is capable of rotation relative to said tracks about

said axis between an upright stowed orientation and a substantially horizontal deployed orientation;

 a cam track that is rigidly connected to said mounting frame;

5 a cam-follower rigidly mounted on said table-top assembly, which cam follower is arranged to engage said cam track, said cam track and cam follower being configured and arranged to control the rotation of the table-top assembly about said axis according to the position of the table-top assembly between said upper and lower positions, such that the table-top assembly is disposed in the stowed orientation when in the lower stowed position, and is disposed in the deployed orientation when in the deployed position;

10 a plurality of abutments on said mounting frame adjacent the upper end of each of said tracks; and

15 a corresponding plurality of load-bearing formations on said table-top assembly adjacent each track-follower, each of said load-bearing formations being configured and arranged to engage a respective one of said abutments when the table-top assembly is moved to the upper deployed position and rotated to the deployed orientation, thereby to cantilever the table-top assembly from the mounting frame, such that said table-top assembly is capable of bearing loads when deployed.

22 A stowable table substantially as hereinbefore described with reference to and as shown in FIGS. 1A, 1B, 1C, 2A, and 2B or FIGS. 3 to 20 of the accompanying drawings.